

Data Validation Checklist Semivolatile Organic Analyses

Project: 35TH Avenue Superfund Site
 Laboratory: TestAmerica – Savannah, GA
 Method: SW-846 8270D Low-Level (PAH)
 Matrix: Soil
 Reviewer: Karen M Trujillo, URS Group, Inc.
 Concurrence¹: Martha Meyers-Lee, URS Group, Inc.

Project No: 60430028; 1
 Job ID.: 680-109515-4
 Associated Samples: Refer to **Attachment A** (Sample Summary)
 Samples Collected: 01/27/2015-01/29/2015
 Date: 10/27/2015
 Date: 11/05/2015

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
1. Were sample storage and preservation requirements met? If temperature >6°C, then J/UJ flag results.	✓				
2. Were all COC records signed and integrity seals intact, indicating that COC was maintained for all samples?	✓				
3. Were there any problems noted in laboratory data package concerning condition of samples upon receipt?		✓			
4. Do any soil samples contain more than 50% water? If yes, then results are to be reported on a wet-weight basis.		✓			
5. Were holding times met (≤7 and 14 days from collection to extraction for aqueous and solid samples, respectively; ≤40 days from extraction to analysis)? If not, then J/UJ flag sample results. If grossly (2x) exceeded, then flag J/R.	✓				
6. Were results for all project-specified target analytes reported?	✓				
7. Were project-specified Reporting Limits achieved for undiluted sample analyses?	✓				
8. Were samples with analyte concentrations exceeding the calibration range of the instrument re-analyzed at a higher dilution? If not, then J flag sample result.	✓				
9. Was a method blank extracted with each batch (i.e., one per 20 samples, per batch, per matrix and per level)?	✓				
10. Were target analytes detected in the method blank?		✓			
11. Are equipment/rinsate blanks associated with every sample? If no, note in DV report.		✓		According to the QAPP, a rinsate blank is to be collected after each decontamination event, which occurs once per week per the client. A rinsate blank is not associated with this sampling event. Blank contamination will be evaluated based on method blank results.	

¹ Independent technical reviewer

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
12. Were target analytes detected in equipment/rinsate blanks?			✓		
13. Were analytes detected in samples below the blank contamination action level? If yes, U flag positive sample results <5x associated blank concentration (10x for common blank contaminants–phthalates)			✓	Blank contamination does not exist.	
14. Is a field duplicate associated with this Job?	✓			<ul style="list-style-type: none"> 680-109515-56 (HP0332A-CSD6") is a duplicate of 680-109515-36 (HP0332A-CS6"), which is a project-specific sample where results were reported under TestAmerica Job ID 680-109515-3. 680-109515-57 (CV0312A-CSD6") is a duplicate of 680-109515-48 (CV0312A-CS6"), which is a project-specific sample where results were reported under TestAmerica Job ID 680-109515-3. 680-109515-58 (CV0559B-CSD6") is a duplicate of 680-109515-59 (CV0559B -CS6"). 680-109515-63 (HP0320J-CSD6") is a duplicate of 680-109515-32 (HP0320J-CS6"), which is a project-specific sample where results were reported under TestAmerica Job ID 680-109515-2. 	
15. Was precision deemed acceptable as defined by the project plans?		✓		Refer to Attachment B (Field Duplicate Evaluation)	J
16. Were DFTPP ion abundance criteria (i.e., Table 3 of SW-846 8270D) met? If no, professional judgment may be applied to determine to what extent the data may be utilized.	✓			Alternate tuning criteria were used by the laboratory (i.e., EPA Method 525.2). All ion abundance criteria were met per EPA Method 525.2.	
17. Were samples analyzed within 12 hours of the DFTPP tune? If no, professional judgment may be applied to determine to what extent the data may be utilized.	✓				
18. Were initial and continuing calibration standards analyzed at the proper frequency for each instrument? <ul style="list-style-type: none"> Ensure that a minimum of five standards are used for the initial calibration. If no, use professional judgment to determine the effect on the data and note in the reviewer narrative. An initial calibration is to be associated with each sample analysis. A continuing calibration standard is to be analyzed for every 12 hours of sample analysis per instrument. 	✓			<ul style="list-style-type: none"> Instrument ID: CMSK Initial Calibration: 02/04/2015 ICV: 02/04/15 @ 11:59 CCV: 02/07/15 @ 10:20 Instrument ID: CMSY Initial Calibration: 02/03/2015 ICV: 02/03/15 @ 19:20 CCV: 02/06/15 @ 16:31 and 02/07/15 @ 13:04 	
19. Were calibration results within laboratory/project specifications? <ul style="list-style-type: none"> ICAL (Criteria: ≤ 20 mean %RSD ($\leq 50\%$ for poor performers), OR $r \geq 0.995$, OR $r^2 \geq 0.99$, and RRF ≥ 0.050 (≥ 0.010 for poor performers)): <ul style="list-style-type: none"> If %RSD > 20 (> 50% for poor performers), or $r < 0.995$, or $r^2 < 0.995$, then J flag positive results and UJ flag non-detects If mean RRF < 0.050 (< 0.010 for poor performers), then J flag positive results and R flag non-detects (unless the lab 		✓		CCV of 02/07/15 @ 13:04 (CCVIS 680-370012/2), instrument CMSY: Indeno[1,2,3-cd]pyrene @ -24.9 %D (Lab/Project: ≤ 20). Negative bias. J and UJ-Flag all positive and non-detect indeno[1,2,3-cd]pyrene results, respectively, in the following associated samples: <ul style="list-style-type: none"> 680-109515-49 (CV0312A-CS12") 680-109515-50 (CV0312A-CS18") 	J/UJ

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
analyzed a detectability check standard) <ul style="list-style-type: none"> ICV and CCV (ICV Criteria: $\leq \pm 30\%D$; CCV Criteria: $\leq \pm 20\%D$ ($\leq 50\%$ for poor performers) and $RF \geq 0.050$ (≥ 0.010 for poor performers)): <ul style="list-style-type: none"> If $\%D > \text{Control Limit}$ ($> 50\%$ for poor performers), then J flag positive results and UJ flag non-detects If $RF < 0.050$ (< 0.010 for poor performers), then UJ flag non-detected semivolatile target compounds 				<ul style="list-style-type: none"> 680-109515-51 (CV0312A-CS24") 680-109515-56 (HP0332A-CSD6") 	
20. Was a LCS prepared for each batch and matrix?	✓				
21. Were LCS recoveries within lab control limits? If no, J flag positive results when $\%R > \text{Upper Control Limit (UCL)}$ and J/R flag results when $\%R < \text{Lower Control Limit (LCL)}$.		✓		LCS 680-369327/22-A: 2-Methylnaphthalene @ 41%R (42-130%R). Negative bias. J Flag positive and R flag ND results in associated samples: <ul style="list-style-type: none"> 680-109515-50 (CV0312A-CS18") 680-109515-51 (CV0312A-CS24") 680-109515-52 (CV0559A-CS6") 680-109515-53 (CV0559A-CS12") 680-109515-56 (HP0332A-CSD6") 680-109515-57 (CV0312A-CSD6") 680-109515-63 (HP0320J-CSD6") 	J/R
21. Were LCS recoveries within lab control limits? If no, J flag positive results when $\%R > \text{Upper Control Limit (UCL)}$ and J/R flag results when $\%R < \text{Lower Control Limit (LCL)}$.	✓				
22. Were LCS/LCSD RPD within lab specifications? If no, J flag positive results and UJ flag non-detects			✓	LCS only	
23. Was a MS/MSD pair extracted at the proper frequency (one per 20 samples per batch)?	✓				
24. Is the MS/MSD parent sample a project-specific sample?	✓	✓		<ul style="list-style-type: none"> Batch 369331: 680-109515-49 (CV0312A-CS12"), MS/MSD Batch 369327: 680-109515-44 (Batch Sample), MS/MSD. Lab sample 680-109515-44 is a project-specific sample (CV0503B-CS6") and results were reported under Job ID 680-109515-3. Batch 369210: 680-109515-15 (Batch Sample), MS/MSD. Lab sample 680-109515-15 is a project-specific sample (CV0627B-GS6") and results were reported under Job ID 680-109515-2. 	
25. For all analytes with native sample concentrations $< 4 \times \text{spiking level}$, were MS and MSD recoveries within laboratory/project specifications? <i>Only QC results for project samples that are reported under this Job ID are evaluated.</i> <ul style="list-style-type: none"> If the native sample concentration $> 4 \times \text{spiking level}$, then an evaluation of interference is not possible. If either MS or MSD recovery meets control limits, qualification 		✓		CV0312A-CS12" (680-109515-49): <ul style="list-style-type: none"> Benzo[g,h,i]perylene MS and MSD @29 and 34 %R (32-150) Fluoranthene MS and MSD @35 and 54 %R (36-147) Indeno[1,2,3-cd]pyrene MS and MSD @30 and 35 %R (35-148) Phenanthrene MS and MSD @29 and 56 %R (40-135) 	

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
<p>of data is not warranted.</p> <ul style="list-style-type: none"> MS and MSD %R<10: J and R Flag positive and ND results, respectively MS and MSD %R >10 and <LCL: J Flag positive and UJ flag non-detect results MS and MSD R% >UCL (or 140): J Flag positive results 				Qualification of data is not warranted, as the MSD recovery met control limits.	
<p>26. For all analytes with native sample concentrations < 4 x spiking level, were laboratory criteria met for precision during the MS and MSD analyses? <i>Only QC results for project samples that are reported under this Job ID are evaluated.</i></p> <ul style="list-style-type: none"> If the native sample concentration > 4x spiking level, then an evaluation of interference is not possible. If %RPD > UCL, J flag positive result and UJ flag non-detect result 	✓				
<p>27. Were surrogate recoveries within lab/project specifications?</p> <ul style="list-style-type: none"> If %R for 1 Acid or BN surrogates <10, then J flag positive and R flag non-detect associated sample results (i.e., acid or BN results) If 2 or more Acid or BN %R >UCL, then J flag positive associated sample results (i.e., acid or BN results) If 2 or more Acid or BN %R ≥10%, but <LCL, then J flag positive and UJ flag non-detect associated sample results (i.e., acid or BN results) If 2 or more Acid or BN, with 1 %R >UCL and 1 %R ≥10%, but <LCL, then J flag positive and UJ flag non-detect associated sample results (i.e., acid or BN results) 		✓		Surrogate o-terphenyl was not recovered (0%) during the diluted analysis of samples 680-109515-52,-53, and -57 through -59. Qualification of sample results is not warranted, as the surrogate compound was diluted out of the samples.	
<p>28. Were internal standard (IS) results within lab/project specifications?</p> <ul style="list-style-type: none"> If IS area counts are less than 50% of the midpoint calibration standard, then J flag positive and UJ flag non-detect associated sample results If IS area counts are greater than 100% of the midpoint calibration standard, then J flag positive results If extremely low area counts are reported or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated, J flag positive and R flag non-detect results If retention time of sample's internal standard is not within 30 seconds of the associated calibration standard, R flag associated data. The chromatographic profile for that sample must be examined to determine if any false positives or negatives exists. For shifts of large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results 	✓				

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
need not be qualified as R, if mass spectral criteria are met.					
29. Were lab comments included in report?	✓			Refer to Attachment C (Case Narrative)	
Comments: The data validation was conducted in accordance with the <i>Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1</i> (OTIE, October 2012). The data review process was modeled after the <i>USEPA Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Organic Methods Data Review</i> (EPA, October 1999) and <i>USEPA CLP NFG for Low Concentration Organic Methods Data Review</i> (EPA, June 2001). Sample results have been qualified based on the results of the data review process (Attachment D). Criteria for acceptability of data were based upon available site information, analytical method requirements, guidance documents, and professional judgment.					

DV Flag Definitions:

- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- R The sample results are unusable. The analyte may or may not be present in the sample.
- U The analyte was analyzed for, but was not detected above the associated level; blank contamination may exist.
- UJ The analyte was not detected above the limit, and the limit is approximate and may be inaccurate or imprecise.

Acronyms:

- % Percent
- %D Percent difference
- %R Percent recovery
- %RSD Percent relative standard deviation
- °C Degrees Celsius
- BN Base/Neutral
- CCV Continuing calibration verification
- CLP Contract laboratory program
- DFTPP Decafluorotriphenylphosphine
- DV Data validation
- EPA Environmental Protection Agency
- ICAL Initial calibration
- ICV Initial calibration verification
- IS Internal standard
- LCL Lower control limit
- LCS Laboratory control sample
- LCSD Laboratory control sample duplicate
- MS Matrix spike
- MSD Matrix spike duplicate
- NFG National Functional Guidelines
- PAH Polynuclear aromatic hydrocarbons
- QAPP Quality Assurance Project Plan
- QC Quality control
- RF Response factor
- RPD Relative percent difference
- RRF Relative response factor
- SW-846 *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA. Available: <http://www3.epa.gov/epawaste/hazard/testmethods/index.htm> [November 5, 2015]
- UCL Upper control limit

ATTACHMENT A
SAMPLE SUMMARY

SAMPLE SUMMARY

Client: Oneida Total Integrated Enterprises LLC

Job Number: 680-109515-4

Sdg Number: 680-109515-04

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-109515-49	CV0312A-CS12"	Solid	01/28/2015 1335	01/31/2015 0852
680-109515-49MS	CV0312A-CS12"	Solid	01/28/2015 1335	01/31/2015 0852
680-109515-49MSD	CV0312A-CS12"	Solid	01/28/2015 1335	01/31/2015 0852
680-109515-50	CV0312A-CS18"	Solid	01/28/2015 1340	01/31/2015 0852
680-109515-51	CV0312A-CS24"	Solid	01/28/2015 1345	01/31/2015 0852
680-109515-52	CV0559A-CS6"	Solid	01/28/2015 1505	01/31/2015 0852
680-109515-53	CV0559A-GS12"	Solid	01/28/2015 1510	01/31/2015 0852
680-109515-54	CV0511A-CSD6"	Solid	01/26/2015 1355	01/31/2015 0852
680-109515-55	HP0320C-CSD12"	Solid	01/27/2015 1015	01/31/2015 0852
680-109515-56	HP0332A-CSD6"	Solid	01/28/2015 0905	01/31/2015 0852
680-109515-57	CV0312A-CSD6"	Solid	01/28/2015 1335	01/31/2015 0852
680-109515-58	CV0559B-CSD6"	Solid	01/29/2015 0920	01/31/2015 0852
680-109515-59	CV0559B-CS6"	Solid	01/29/2015 0915	01/31/2015 0852
680-109515-60	CV0559B-CS12"	Solid	01/29/2015 0920	01/31/2015 0852
680-109515-61	CV0559B-CS18"	Solid	01/29/2015 0925	01/31/2015 0852
680-109515-62	CV0559B-CS24"	Solid	01/29/2015 0930	01/31/2015 0852
680-109515-63	HP0320J-CSD6"	Solid	01/27/2015 1415	01/31/2015 0852

ATTACHMENT B
FIELD DUPLICATE EVALUATION

Evaluation of Field Duplicate Results

Attachment B

Analyte	680-109515-36 HP0332A-CS6"	RL	680-109515-56 HP0332A-CSD6"	RL	Unit	Avg. RLx5	RPD	Absolute difference	2x Avg RL	Action
1-Methylnaphthalene	33	8.1	24	8.1	µg/kg	40.5	NA	9	16.2	None, absolute difference ≤ 2x Avg RL
2-Methylnaphthalene	38 *	8.1	28 *	8.1	µg/kg	40.5	NA	10	16.2	None, absolute difference ≤ 2x Avg RL
Acenaphthene	U	8.1	4.3 J	8.1	µg/kg	40.5	NA	4.3	16.2	None, absolute difference ≤ 2x Avg RL
Acenaphthylene	12	8.1	9.5	8.1	µg/kg	40.5	NA	2.5	16.2	None, absolute difference ≤ 2x Avg RL
Anthracene	23	8.1	17	8.1	µg/kg	40.5	NA	6	16.2	None, absolute difference ≤ 2x Avg RL
Benzo(a)anthracene	160	8.1	140	8.1	µg/kg	40.5	13	NA	NA	None, RPD ≤ 50%
Benzo(a)pyrene	170	8.1	150	8.1	µg/kg	40.5	13	NA	NA	None, RPD ≤ 50%
Benzo(b)fluoranthene	340	8.1	290	8.1	µg/kg	40.5	16	NA	NA	None, RPD ≤ 50%
Benzo(g,h,i)perylene	99	8.1	61	8.1	µg/kg	40.5	48	NA	NA	None, RPD ≤ 50%
Benzo(k)fluoranthene	92	8.1	110	8.1	µg/kg	40.5	18	NA	NA	None, RPD ≤ 50%
Chrysene	270	8.1	210	8.1	µg/kg	40.5	25	NA	NA	None, RPD ≤ 50%
Dibenzo(a,h)anthracene	45	8.1	26	8.1	µg/kg	40.5	NA	19	16.2	J/UJ-flag, absolute difference > 2x Avg RL
Fluoranthene	200	8.1	150	8.1	µg/kg	40.5	29	NA	NA	None, RPD ≤ 50%
Fluorene	U	8.1	4.7 J	8.1	µg/kg	40.5	NA	4.7	16.2	None, absolute difference ≤ 2x Avg RL
Indeno(1,2,3-cd)pyrene	83	8.1	53	8.1	µg/kg	40.5	44	NA	NA	None, RPD ≤ 50%
Naphthalene	41	8.1	29	8.1	µg/kg	40.5	NA	12	16.2	None, absolute difference ≤ 2x Avg RL
Phenanthrene	130	8.1	79	8.1	µg/kg	40.5	49	NA	NA	None, RPD ≤ 50%
Pyrene	250	8.1	210	8.1	µg/kg	40.5	17	NA	NA	None, RPD ≤ 50%

Note: If the analyte was not detected, then the cell was left blank.

* - LCS or LCSD exceeds the control limits

µg/kg - Micrograms per kilogram

J - Estimated value

NA - Not applicable

RL - Reporting limit

RPD - Relative percent difference

U - Not detected

UJ - Not detected and the limit is estimated

Precision is based on either the absolute difference between sample results or RPD. If the sample results are less than or equal to 5x's the RL, then precision is based on the absolute difference between duplicate results. If sample results >5x's RL, then precision is evaluated using RPD. J-Flag sample results whenever the absolute difference is greater than the RL (2x for soils) or the RPD >20% (50% for soil). Table above presents the results for detected analytes only.

Evaluation of Field Duplicate Results

Attachment B

Analyte	680-109515-48 CV0312A-CS6"	RL	680-109515-57 CV0312A-CSD6"	RL	Unit	Avg. RLx5	RPD	Absolute difference	2x Avg RL	Action
1-Methylnaphthalene	100	77	110	81	µg/kg	395	NA	10	158	None, absolute difference ≤ 2x Avg RL
2-Methylnaphthalene	140 *	77	150 *	81	µg/kg	395	NA	10	158	None, absolute difference ≤ 2x Avg RL
Acenaphthene	U	77	54 J	81	µg/kg	395	NA	54	158	None, absolute difference ≤ 2x Avg RL
Anthracene	110	77	190	81	µg/kg	395	NA	80	158	None, absolute difference ≤ 2x Avg RL
Benzo(a)anthracene	630	77	980	81	µg/kg	395	43	NA	NA	None, RPD ≤ 50%
Benzo(a)pyrene	560	77	900	81	µg/kg	395	47	NA	NA	None, RPD ≤ 50%
Benzo(b)fluoranthene	1100	77	1500	81	µg/kg	395	31	NA	NA	None, RPD ≤ 50%
Benzo(g,h,i)perylene	410	77	620	81	µg/kg	395	41	NA	NA	None, RPD ≤ 50%
Benzo(k)fluoranthene	400	77	570	81	µg/kg	395	35	NA	NA	None, RPD ≤ 50%
Chrysene	800	77	1200	81	µg/kg	395	40	NA	NA	None, RPD ≤ 50%
Dibenzo(a,h)anthracene	140	77	220	81	µg/kg	395	NA	80	158	None, absolute difference ≤ 2x Avg RL
Fluoranthene	1200	77	2100	81	µg/kg	395	55	NA	NA	J/UJ-flag, RPD > 50%
Fluorene	U	77	64 J	81	µg/kg	395	NA	64	158	None, absolute difference ≤ 2x Avg RL
Indeno(1,2,3-cd)pyrene	320	77	530	81	µg/kg	395	NA	210	158	J/UJ-flag, absolute difference > 2x Avg RL
Naphthalene	89	77	110	81	µg/kg	395	NA	21	158	None, absolute difference ≤ 2x Avg RL
Phenanthrene	560	77	1000	81	µg/kg	395	56	NA	NA	J/UJ-flag, RPD > 50%
Pyrene	1000	77	1600	81	µg/kg	395	46	NA	NA	None, RPD ≤ 50%

Note: If the analyte was not detected, then the cell was left blank.

* - LCS or LCSD exceeds the control limits

µg/kg - Micrograms per kilogram

J - Estimated value

NA - Not applicable

RL - Reporting limit

RPD - Relative percent difference

U - Not detected

UJ - Not detected and the limit is estimated

Precision is based on either the absolute difference between sample results or RPD. If the sample results are less than or equal to 5x's the RL, then precision is based on the absolute difference between duplicate results. If sample results >5x's RL, then precision is evaluated using RPD. J-Flag sample results whenever the absolute difference is greater than the RL (2x for soils) or the RPD >20% (50% for soil). Table above presents the results for detected analytes only.

Evaluation of Field Duplicate Results

Attachment B

Analyte	680-109515-59 CV0559B-CS6"	RL	680-109515-58 CV0559B-CSD6"	RL	Unit	Avg. RLx5	RPD	Absolute difference	2x Avg RL	Action
2-Methylnaphthalene	42 J	85	U	85	µg/kg	425	NA	42	170	None, absolute difference ≤ 2x Avg RL
Anthracene	130	85	120	85	µg/kg	425	NA	10	170	None, absolute difference ≤ 2x Avg RL
Benzo(a)anthracene	2800	85	1900	85	µg/kg	425	38	NA	NA	None, RPD ≤ 50%
Benzo(a)pyrene	3900	85	2700	85	µg/kg	425	36	NA	NA	None, RPD ≤ 50%
Benzo(b)fluoranthene	8300	85	5200	85	µg/kg	425	46	NA	NA	None, RPD ≤ 50%
Benzo(g,h,i)perylene	3500	85	2300	85	µg/kg	425	41	NA	NA	None, RPD ≤ 50%
Benzo(k)fluoranthene	2800	85	2100	85	µg/kg	425	29	NA	NA	None, RPD ≤ 50%
Chrysene	3900	85	2600	85	µg/kg	425	40	NA	NA	None, RPD ≤ 50%
Dibenzo(a,h)anthracene	1500	85	950	85	µg/kg	425	45	NA	NA	None, RPD ≤ 50%
Fluoranthene	2800	85	2000	85	µg/kg	425	33	NA	NA	None, RPD ≤ 50%
Indeno(1,2,3-cd)pyrene	2700	85	1800	85	µg/kg	425	40	NA	NA	None, RPD ≤ 50%
Naphthalene	51 J	85	46 J	85	µg/kg	425	NA	5	170	None, absolute difference ≤ 2x Avg RL
Phenanthrene	740	85	720	85	µg/kg	425	3	NA	NA	None, RPD ≤ 50%
Pyrene	2700	85	1800	85	µg/kg	425	40	NA	NA	None, RPD ≤ 50%

Note: If the analyte was not detected, then the cell was left blank.

µg/kg - micrograms per kilogram

J - Estimated value

NA - Not applicable

RL - Reporting limit

RPD - Relative percent difference

UJ - Not detected and the limit is estimated

Precision is based on either the absolute difference between sample results or RPD. If the sample results are less than or equal to 5x's the RL, then precision is based on the absolute difference between duplicate results. If sample results >5x's RL, then precision is evaluated using RPD. J-Flag sample results whenever the absolute difference is greater than the RL (2x for soils) or the RPD >20% (50% for soil). Table above presents the results for detected analytes only.

Evaluation of Field Duplicate Results

Attachment B

Analyte	680-109515-32 HP0320J-CS6"	RL	680-109515-63 HP0320J-CSD6"	RL	Unit	Avg. RLx5	RPD	Absolute difference	2x Avg RL	Action
1-Methylnaphthalene	15	8.7	16	8.5	µg/kg	43	NA	1	17.2	None, absolute difference ≤ 2x Avg RL
2-Methylnaphthalene	18	8.7	21	8.5	µg/kg	43	NA	3	17.2	None, absolute difference ≤ 2x Avg RL
Acenaphthylene	5.7 J	8.7	27	8.5	µg/kg	43	NA	21.3	17.2	J/UJ-flag, absolute difference > 2x Avg RL
Anthracene	10	8.7	39	8.5	µg/kg	43	NA	29	17.2	J/UJ-flag, absolute difference > 2x Avg RL
Benzo(a)anthracene	58	8.7	200	8.5	µg/kg	43	110	NA	NA	J/UJ-flag, RPD > 50%
Benzo(a)pyrene	52	8.7	150	8.5	µg/kg	43	97	NA	NA	J/UJ-flag, RPD > 50%
Benzo(b)fluoranthene	98	8.7	240	8.5	µg/kg	43	84	NA	NA	J/UJ-flag, RPD > 50%
Benzo(g,h,i)perylene	30	8.7	65	8.5	µg/kg	43	NA	35	17.2	J/UJ-flag, absolute difference > 2x Avg RL
Benzo(k)fluoranthene	35	8.7	100	8.5	µg/kg	43	NA	65	17.2	J/UJ-flag, absolute difference > 2x Avg RL
Chrysene	78	8.7	230	8.5	µg/kg	43	99	NA	NA	J/UJ-flag, RPD > 50%
Dibenzo(a,h)anthracene	12	8.7	34	8.5	µg/kg	43	NA	22	17.2	J/UJ-flag, absolute difference > 2x Avg RL
Fluoranthene	82	8.7	320	8.5	µg/kg	43	118	NA	NA	J/UJ-flag, RPD > 50%
Indeno(1,2,3-cd)pyrene	19	8.7	58	8.5	µg/kg	43	NA	39	17.2	J/UJ-flag, absolute difference > 2x Avg RL
Naphthalene	20	8.7	31	8.5	µg/kg	43	NA	11	17.2	None, absolute difference ≤ 2x Avg RL
Phenanthrene	56	8.7	110	8.5	µg/kg	43	65	NA	NA	J/UJ-flag, RPD > 50%
Pyrene	71	8.7	250	8.5	µg/kg	43	112	NA	NA	J/UJ-flag, RPD > 50%

Note: If the analyte was not detected, then the cell was left blank.

µg/kg - micrograms per kilogram

J - Estimated value

NA - Not applicable

RL - Reporting limit

RPD - Relative percent difference

UJ - Not detected and the limit is estimated

Precision is based on either the absolute difference between sample results or RPD. If the sample results are less than or equal to 5x's the RL, then precision is based on the absolute difference between duplicate results. If sample results >5x's RL, then precision is evaluated using RPD. J-Flag sample results whenever the absolute difference is greater than the RL (2x for soils) or the RPD >20% (50% for soil). Table above presents the results for detected analytes only.

ATTACHMENT C
CASE NARRATIVE

CASE NARRATIVE
Client: Oneida Total Integrated Enterprises LLC
Project: 35th Avenue Superfund Site
Report Number: 680-109515-4

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 1/31/2015 8:52 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.3° C and 2.1° C.

The container label for the following sample(s) did not match the information listed on the Chain-of-Custody (COC): CV0559A-CS6" (680-109515-52), CV0559A-GS12" (680-109515-53). The container labels for sample -52 Container had a label ID: CV0559A-CS6", and for sample -53 Container label ID: CV0559A-CS12". Laboratory was requested to use the CV559A ID.

SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS) LOW LEVEL PAH

Samples CV0312A-CS12" (680-109515-49), CV0312A-CS18" (680-109515-50), CV0312A-CS24" (680-109515-51), CV0559A-CS6" (680-109515-52), CV0559A-GS12" (680-109515-53), CV0511A-CSD6" (680-109515-54), HP0320C-CSD12" (680-109515-55), HP0332A-CSD6" (680-109515-56), CV0312A-CSD6" (680-109515-57), CV0559B-CSD6" (680-109515-58), CV0559B-CS6" (680-109515-59), CV0559B-CS12" (680-109515-60), CV0559B-CS18" (680-109515-61), CV0559B-CS24" (680-109515-62) and HP0320J-CSD6" (680-109515-63) were analyzed for Semivolatile Organic Compounds (GC/MS) Low level PAH in accordance with EPA SW846 Method 8270D. The samples were prepared on 02/02/2015 and 02/03/2015 and analyzed on 02/07/2015 and 02/08/2015.

Method(s) 8270D_LL_PAH: The following sample(s) was diluted due to the nature of the sample matrix: CV0312A-CSD6" (680-109515-57), CV0503B-CS6" (680-109515-44), CV0503B-CS6" (680-109515-44 MS), CV0503B-CS6" (680-109515-44 MSD), CV0559A-CS6" (680-109515-52), CV0559A-GS12" (680-109515-53), CV0559B-CS6" (680-109515-59), CV0559B-CSD6" (680-109515-58). Due to dilution, surrogate recoveries are outside control limits.

Method(s) 8270D_LL_PAH: Manual integration was performed on the following sample(s): CV0312A-CSD6" (680-109515-57), CV0559A-CS6" (680-109515-52), CV0559A-GS12" (680-109515-53), CV0559B-CS12" (680-109515-60), CV0559B-CS18" (680-109515-61), CV0559B-CS24" (680-109515-62), CV0559B-CS6" (680-109515-59), CV0559B-CSD6" (680-109515-58), HP0320J-CSD6" (680-109515-63), CV0511A-CSD6" (680-109515-54), HP0320C-CSD12" (680-109515-55), CV0312A-CS12" (680-109515-49), CV0312A-CS12" (680-109515-49 MS), CV0312A-CS12" (680-109515-49 MSD), CV0312A-CS18" (680-109515-50), CV0312A-CS24" (680-109515-51), HP0332A-CSD6" (680-109515-56).

Method(s) 8270D_LL_PAH: The continuing calibration verification (CCV) analyzed in batch 370012 was outside the method criteria for the following analyte(s): Indeno[1,2,3-cd]pyrene and o-terphenyl. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

2-Methylnaphthalene has recovery outside criteria low for LCS 680-369327/22-A. Refer to the QC report for details.

Several compounds have recoveries outside criteria low for the MS of sample CV0312A-CS12" (680-109515-49) in batch 680-370012.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

METALS (ICP)

Samples CV0312A-CS12" (680-109515-49), CV0312A-CS18" (680-109515-50), CV0312A-CS24" (680-109515-51), CV0559A-CS6" (680-109515-52), CV0559A-GS12" (680-109515-53), CV0511A-CSD6" (680-109515-54), HP0320C-CSD12" (680-109515-55), HP0332A-CSD6" (680-109515-56), CV0312A-CSD6" (680-109515-57), CV0559B-CSD6" (680-109515-58), CV0559B-CS6" (680-109515-59), CV0559B-CS12" (680-109515-60), CV0559B-CS18" (680-109515-61), CV0559B-CS24" (680-109515-62) and HP0320J-CSD6" (680-109515-63) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/02/2015 and 02/03/2015 and analyzed on 02/04/2015.

Arsenic and Iron have recoveries outside criteria low for the MS and MSD of sample CV0312A-CS12" (680-109515-49) in batch 680-369692. Aluminum failed the recovery criteria high.

Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS/MOISTURE

Samples CV0312A-CS12" (680-109515-49), CV0312A-CS18" (680-109515-50), CV0312A-CS24" (680-109515-51), CV0559A-CS6" (680-109515-52), CV0559A-GS12" (680-109515-53), CV0511A-CSD6" (680-109515-54), HP0320C-CSD12" (680-109515-55), HP0332A-CSD6" (680-109515-56), CV0312A-CSD6" (680-109515-57), CV0559B-CSD6" (680-109515-58), CV0559B-CS6" (680-109515-59), CV0559B-CS12" (680-109515-60), CV0559B-CS18" (680-109515-61), CV0559B-CS24" (680-109515-62) and HP0320J-CSD6" (680-109515-63) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 01/31/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ATTACHMENT D
QUALIFIED SAMPLE RESULTS

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0312A-CS12"</u>	Lab Sample ID: <u>680-109515-49</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2YB0732.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/28/2015 13:35</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:35</u>
Sample wt/vol: <u>30.07(g)</u>	Date Analyzed: <u>02/08/2015 00:12</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>22.5</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>370012</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	16		8.6	4.2
208-96-8	Acenaphthylene	7.3	J	8.6	4.2
120-12-7	Anthracene	19		8.6	4.2
56-55-3	Benzo[a]anthracene	140		8.6	4.2
50-32-8	Benzo[a]pyrene	160		8.6	1.5
205-99-2	Benzo[b]fluoranthene	310		8.6	4.2
191-24-2	Benzo[g,h,i]perylene	68		8.6	4.2
207-08-9	Benzo[k]fluoranthene	120		8.6	2.6
218-01-9	Chrysene	240		8.6	4.2
53-70-3	Dibenz(a,h)anthracene	25		8.6	4.2
206-44-0	Fluoranthene	270		8.6	4.2
86-73-7	Fluorene	13		8.6	4.2
193-39-5	Indeno[1,2,3-cd]pyrene	57	J	8.6	4.2
90-12-0	1-Methylnaphthalene	35		8.6	4.0
91-57-6	2-Methylnaphthalene	32		8.6	4.2
91-20-3	Naphthalene	24		8.6	4.2
85-01-8	Phenanthrene	240		8.6	3.1
129-00-0	Pyrene	310		8.6	4.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	92		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0312A-CS18"</u>	Lab Sample ID: <u>680-109515-50</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2YB0724.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/28/2015 13:40</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:00</u>
Sample wt/vol: <u>30.11(g)</u>	Date Analyzed: <u>02/07/2015 21:13</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>21.7</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>370012</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	8.5	U	8.5	4.2
208-96-8	Acenaphthylene	8.5	U	8.5	4.2
120-12-7	Anthracene	8.5	U	8.5	4.2
56-55-3	Benzo[a]anthracene	13		8.5	4.2
50-32-8	Benzo[a]pyrene	14		8.5	1.5
205-99-2	Benzo[b]fluoranthene	30		8.5	4.2
191-24-2	Benzo[g,h,i]perylene	12		8.5	4.2
207-08-9	Benzo[k]fluoranthene	10		8.5	2.5
218-01-9	Chrysene	28		8.5	4.2
53-70-3	Dibenz(a,h)anthracene	8.5	U	8.5	4.2
206-44-0	Fluoranthene	24		8.5	4.2
86-73-7	Fluorene	8.5	U	8.5	4.2
193-39-5	Indeno[1,2,3-cd]pyrene	9.6	J	8.5	4.2
90-12-0	1-Methylnaphthalene	8.5	U	8.5	3.9
91-57-6	2-Methylnaphthalene	4.4	J J	8.5	4.2
91-20-3	Naphthalene	6.0	J	8.5	4.2
85-01-8	Phenanthrene	19		8.5	3.1
129-00-0	Pyrene	25		8.5	4.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	105		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0312A-CS24"</u>	Lab Sample ID: <u>680-109515-51</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2YB0725.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/28/2015 13:45</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:00</u>
Sample wt/vol: <u>30.14(g)</u>	Date Analyzed: <u>02/07/2015 21:36</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>23.7</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>370012</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	8.7	U	8.7	4.3
208-96-8	Acenaphthylene	8.7	U	8.7	4.3
120-12-7	Anthracene	8.7	U	8.7	4.3
56-55-3	Benzo[a]anthracene	24		8.7	4.3
50-32-8	Benzo[a]pyrene	27		8.7	1.6
205-99-2	Benzo[b]fluoranthene	40		8.7	4.3
191-24-2	Benzo[g,h,i]perylene	16		8.7	4.3
207-08-9	Benzo[k]fluoranthene	16		8.7	2.6
218-01-9	Chrysene	32		8.7	4.3
53-70-3	Dibenz(a,h)anthracene	6.8	J	8.7	4.3
206-44-0	Fluoranthene	33		8.7	4.3
86-73-7	Fluorene	8.7	U	8.7	4.3
193-39-5	Indeno[1,2,3-cd]pyrene	13	J	8.7	4.3
90-12-0	1-Methylnaphthalene	8.7	U	8.7	4.0
91-57-6	2-Methylnaphthalene	8.7	U R	8.7	4.0
91-20-3	Naphthalene	8.7	U	8.7	4.3
85-01-8	Phenanthrene	13		8.7	3.1
129-00-0	Pyrene	40		8.7	4.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	104		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0559A-CS6"</u>	Lab Sample ID: <u>680-109515-52</u>
Matrix: <u>Solid</u>	Lab File ID: <u>1KB0719.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/28/2015 15:05</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:00</u>
Sample wt/vol: <u>30.14(g)</u>	Date Analyzed: <u>02/07/2015 16:27</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>10</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>14.9</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>369988</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	83		78	39
208-96-8	Acenaphthylene	39	J	78	39
120-12-7	Anthracene	230		78	39
56-55-3	Benzo[a]anthracene	1800		78	39
50-32-8	Benzo[a]pyrene	2200		78	14
205-99-2	Benzo[b]fluoranthene	4100		78	39
191-24-2	Benzo[g,h,i]perylene	1900		78	39
207-08-9	Benzo[k]fluoranthene	1700		78	23
218-01-9	Chrysene	2000		78	39
53-70-3	Dibenz(a,h)anthracene	710		78	39
206-44-0	Fluoranthene	2600		78	39
86-73-7	Fluorene	79		78	39
193-39-5	Indeno[1,2,3-cd]pyrene	1400		78	39
90-12-0	1-Methylnaphthalene	78	U	78	36
91-57-6	2-Methylnaphthalene	46	J J	78	39
91-20-3	Naphthalene	55	J	78	39
85-01-8	Phenanthrene	1100		78	28
129-00-0	Pyrene	2300		78	39

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0559A-GS12"</u>	Lab Sample ID: <u>680-109515-53</u>
Matrix: <u>Solid</u>	Lab File ID: <u>1KB0720.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/28/2015 15:10</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:00</u>
Sample wt/vol: <u>30.13(g)</u>	Date Analyzed: <u>02/07/2015 16:50</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>10</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>16.3</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>369988</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	310		80	39
208-96-8	Acenaphthylene	80	U	80	39
120-12-7	Anthracene	640		80	39
56-55-3	Benzo[a]anthracene	2700		80	39
50-32-8	Benzo[a]pyrene	2600		80	14
205-99-2	Benzo[b]fluoranthene	3700		80	39
191-24-2	Benzo[g,h,i]perylene	1700		80	39
207-08-9	Benzo[k]fluoranthene	1700		80	24
218-01-9	Chrysene	2800		80	39
53-70-3	Dibenz(a,h)anthracene	590		80	39
206-44-0	Fluoranthene	6000		80	39
86-73-7	Fluorene	280		80	39
193-39-5	Indeno[1,2,3-cd]pyrene	1300		80	39
90-12-0	1-Methylnaphthalene	80	U	80	37
91-57-6	2-Methylnaphthalene	80	U R	80	39
91-20-3	Naphthalene	80	U	80	39
85-01-8	Phenanthrene	3100		80	29
129-00-0	Pyrene	5200		80	39

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0511A-CSD6"</u>	Lab Sample ID: <u>680-109515-54</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2YB0627.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/26/2015 13:55</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/02/2015 14:00</u>
Sample wt/vol: <u>30.08(g)</u>	Date Analyzed: <u>02/07/2015 01:48</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>20.6</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>369958</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	8.4	U	8.4	4.1
208-96-8	Acenaphthylene	8.4	U	8.4	4.1
120-12-7	Anthracene	11		8.4	4.1
56-55-3	Benzo[a]anthracene	70		8.4	4.1
50-32-8	Benzo[a]pyrene	67		8.4	1.5
205-99-2	Benzo[b]fluoranthene	110		8.4	4.1
191-24-2	Benzo[g,h,i]perylene	40		8.4	4.1
207-08-9	Benzo[k]fluoranthene	44		8.4	2.5
218-01-9	Chrysene	89		8.4	4.1
53-70-3	Dibenz(a,h)anthracene	18		8.4	4.1
206-44-0	Fluoranthene	120		8.4	4.1
86-73-7	Fluorene	8.4	U	8.4	4.1
193-39-5	Indeno[1,2,3-cd]pyrene	31		8.4	4.1
90-12-0	1-Methylnaphthalene	5.7	J	8.4	3.9
91-57-6	2-Methylnaphthalene	7.1	J	8.4	4.1
91-20-3	Naphthalene	5.4	J	8.4	4.1
85-01-8	Phenanthrene	45		8.4	3.0
129-00-0	Pyrene	140		8.4	4.1

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	81		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>HP0320C-CSD12"</u>	Lab Sample ID: <u>680-109515-55</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2YB0624.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/27/2015 10:15</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/02/2015 14:35</u>
Sample wt/vol: <u>30.20(g)</u>	Date Analyzed: <u>02/07/2015 00:41</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>15.7</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>369958</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	7.9	U	7.9	3.9
208-96-8	Acenaphthylene	5.3	J	7.9	3.9
120-12-7	Anthracene	4.7	J	7.9	3.9
56-55-3	Benzo[a]anthracene	17		7.9	3.9
50-32-8	Benzo[a]pyrene	24		7.9	1.4
205-99-2	Benzo[b]fluoranthene	49		7.9	3.9
191-24-2	Benzo[g,h,i]perylene	20		7.9	3.9
207-08-9	Benzo[k]fluoranthene	19		7.9	2.4
218-01-9	Chrysene	34		7.9	3.9
53-70-3	Dibenz(a,h)anthracene	7.3	J	7.9	3.9
206-44-0	Fluoranthene	22		7.9	3.9
86-73-7	Fluorene	7.9	U	7.9	3.9
193-39-5	Indeno[1,2,3-cd]pyrene	14		7.9	3.9
90-12-0	1-Methylnaphthalene	10		7.9	3.7
91-57-6	2-Methylnaphthalene	11		7.9	3.9
91-20-3	Naphthalene	12		7.9	3.9
85-01-8	Phenanthrene	20		7.9	2.8
129-00-0	Pyrene	28		7.9	3.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	92		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>HP0332A-CSD6"</u>	Lab Sample ID: <u>680-109515-56</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2YB0728.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/28/2015 09:05</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:00</u>
Sample wt/vol: <u>30.08(g)</u>	Date Analyzed: <u>02/07/2015 22:43</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>17.9</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>370012</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	4.3	J	8.1	4.0
208-96-8	Acenaphthylene	9.5		8.1	4.0
120-12-7	Anthracene	17		8.1	4.0
56-55-3	Benzo[a]anthracene	140		8.1	4.0
50-32-8	Benzo[a]pyrene	150		8.1	1.5
205-99-2	Benzo[b]fluoranthene	290		8.1	4.0
191-24-2	Benzo[g,h,i]perylene	61		8.1	4.0
207-08-9	Benzo[k]fluoranthene	110		8.1	2.4
218-01-9	Chrysene	210		8.1	4.0
53-70-3	Dibenz(a,h)anthracene	26	J	8.1	4.0
206-44-0	Fluoranthene	150		8.1	4.0
86-73-7	Fluorene	4.7	J	8.1	4.0
193-39-5	Indeno[1,2,3-cd]pyrene	53	J	8.1	4.0
90-12-0	1-Methylnaphthalene	24		8.1	3.8
91-57-6	2-Methylnaphthalene	28	J	8.1	4.0
91-20-3	Naphthalene	29		8.1	4.0
85-01-8	Phenanthrene	79		8.1	2.9
129-00-0	Pyrene	210		8.1	4.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	81		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0312A-CSD6"</u>	Lab Sample ID: <u>680-109515-57</u>
Matrix: <u>Solid</u>	Lab File ID: <u>1KB0722.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/28/2015 13:35</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:00</u>
Sample wt/vol: <u>30.19(g)</u>	Date Analyzed: <u>02/07/2015 17:36</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>10</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>17.4</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>369988</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	54	J	81	40
208-96-8	Acenaphthylene	81	U	81	40
120-12-7	Anthracene	190		81	40
56-55-3	Benzo[a]anthracene	980		81	40
50-32-8	Benzo[a]pyrene	900		81	14
205-99-2	Benzo[b]fluoranthene	1500		81	40
191-24-2	Benzo[g,h,i]perylene	620		81	40
207-08-9	Benzo[k]fluoranthene	570		81	24
218-01-9	Chrysene	1200		81	40
53-70-3	Dibenz(a,h)anthracene	220		81	40
206-44-0	Fluoranthene	2100	J	81	40
86-73-7	Fluorene	64	J	81	40
193-39-5	Indeno[1,2,3-cd]pyrene	530	J	81	40
90-12-0	1-Methylnaphthalene	110		81	37
91-57-6	2-Methylnaphthalene	150	J	81	40
91-20-3	Naphthalene	110		81	40
85-01-8	Phenanthrene	1000	J	81	29
129-00-0	Pyrene	1600		81	40

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0559B-CSD6"</u>	Lab Sample ID: <u>680-109515-58</u>
Matrix: <u>Solid</u>	Lab File ID: <u>1KB0724.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/29/2015 09:20</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:35</u>
Sample wt/vol: <u>29.97(g)</u>	Date Analyzed: <u>02/07/2015 18:21</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>10</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>20.8</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>369988</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	85	U	85	42
208-96-8	Acenaphthylene	85	U	85	42
120-12-7	Anthracene	120		85	42
56-55-3	Benzo[a]anthracene	1900		85	42
50-32-8	Benzo[a]pyrene	2700		85	15
205-99-2	Benzo[b]fluoranthene	5200		85	42
191-24-2	Benzo[g,h,i]perylene	2300		85	42
207-08-9	Benzo[k]fluoranthene	2100		85	25
218-01-9	Chrysene	2600		85	42
53-70-3	Dibenz(a,h)anthracene	950		85	42
206-44-0	Fluoranthene	2000		85	42
86-73-7	Fluorene	85	U	85	42
193-39-5	Indeno[1,2,3-cd]pyrene	1800		85	42
90-12-0	1-Methylnaphthalene	85	U	85	39
91-57-6	2-Methylnaphthalene	85	U	85	42
91-20-3	Naphthalene	46	J	85	42
85-01-8	Phenanthrene	720		85	30
129-00-0	Pyrene	1800		85	42

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0559B-CS6"</u>	Lab Sample ID: <u>680-109515-59</u>
Matrix: <u>Solid</u>	Lab File ID: <u>1KB0725.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/29/2015 09:15</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:35</u>
Sample wt/vol: <u>29.99(g)</u>	Date Analyzed: <u>02/07/2015 18:44</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>10</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>20.7</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>369988</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	85	U	85	42
208-96-8	Acenaphthylene	85	U	85	42
120-12-7	Anthracene	130		85	42
56-55-3	Benzo[a]anthracene	2800		85	42
50-32-8	Benzo[a]pyrene	3900		85	15
205-99-2	Benzo[b]fluoranthene	8300		85	42
191-24-2	Benzo[g,h,i]perylene	3500		85	42
207-08-9	Benzo[k]fluoranthene	2800		85	25
218-01-9	Chrysene	3900		85	42
53-70-3	Dibenz(a,h)anthracene	1500		85	42
206-44-0	Fluoranthene	2800		85	42
86-73-7	Fluorene	85	U	85	42
193-39-5	Indeno[1,2,3-cd]pyrene	2700		85	42
90-12-0	1-Methylnaphthalene	85	U	85	39
91-57-6	2-Methylnaphthalene	42	J	85	42
91-20-3	Naphthalene	51	J	85	42
85-01-8	Phenanthrene	740		85	30
129-00-0	Pyrene	2700		85	42

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0559B-CS12"</u>	Lab Sample ID: <u>680-109515-60</u>
Matrix: <u>Solid</u>	Lab File ID: <u>1KB0730.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/29/2015 09:20</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:35</u>
Sample wt/vol: <u>30.00(g)</u>	Date Analyzed: <u>02/07/2015 20:39</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>20.3</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>369988</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	8.4	U	8.4	4.1
208-96-8	Acenaphthylene	5.6	J	8.4	4.1
120-12-7	Anthracene	18		8.4	4.1
56-55-3	Benzo[a]anthracene	270		8.4	4.1
50-32-8	Benzo[a]pyrene	350		8.4	1.5
205-99-2	Benzo[b]fluoranthene	730		8.4	4.1
191-24-2	Benzo[g,h,i]perylene	240		8.4	4.1
207-08-9	Benzo[k]fluoranthene	290		8.4	2.5
218-01-9	Chrysene	340		8.4	4.1
53-70-3	Dibenz(a,h)anthracene	100		8.4	4.1
206-44-0	Fluoranthene	280		8.4	4.1
86-73-7	Fluorene	8.4	U	8.4	4.1
193-39-5	Indeno[1,2,3-cd]pyrene	170		8.4	4.1
90-12-0	1-Methylnaphthalene	8.4	U	8.4	3.9
91-57-6	2-Methylnaphthalene	8.4	U	8.4	4.1
91-20-3	Naphthalene	7.8	J	8.4	4.1
85-01-8	Phenanthrene	76		8.4	3.0
129-00-0	Pyrene	270		8.4	4.1

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	54		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0559B-CS18"</u>	Lab Sample ID: <u>680-109515-61</u>
Matrix: <u>Solid</u>	Lab File ID: <u>1KB0731.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/29/2015 09:25</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:35</u>
Sample wt/vol: <u>30.06(g)</u>	Date Analyzed: <u>02/07/2015 21:02</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>16.6</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>369988</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	8.0	U	8.0	3.9
208-96-8	Acenaphthylene	8.0	U	8.0	3.9
120-12-7	Anthracene	8.0	U	8.0	3.9
56-55-3	Benzo[a]anthracene	46		8.0	3.9
50-32-8	Benzo[a]pyrene	57		8.0	1.4
205-99-2	Benzo[b]fluoranthene	170		8.0	3.9
191-24-2	Benzo[g,h,i]perylene	60		8.0	3.9
207-08-9	Benzo[k]fluoranthene	46		8.0	2.4
218-01-9	Chrysene	64		8.0	3.9
53-70-3	Dibenz(a,h)anthracene	23		8.0	3.9
206-44-0	Fluoranthene	37		8.0	3.9
86-73-7	Fluorene	8.0	U	8.0	3.9
193-39-5	Indeno[1,2,3-cd]pyrene	37		8.0	3.9
90-12-0	1-Methylnaphthalene	8.0	U	8.0	3.7
91-57-6	2-Methylnaphthalene	8.0	U	8.0	3.9
91-20-3	Naphthalene	8.0	U	8.0	3.9
85-01-8	Phenanthrene	9.9		8.0	2.9
129-00-0	Pyrene	37		8.0	3.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	69		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>CV0559B-CS24"</u>	Lab Sample ID: <u>680-109515-62</u>
Matrix: <u>Solid</u>	Lab File ID: <u>1KB0732.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/29/2015 09:30</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:35</u>
Sample wt/vol: <u>30.04(g)</u>	Date Analyzed: <u>02/07/2015 21:25</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>16.9</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>369988</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	8.0	U	8.0	4.0
208-96-8	Acenaphthylene	8.0	U	8.0	4.0
120-12-7	Anthracene	8.0	U	8.0	4.0
56-55-3	Benzo[a]anthracene	11		8.0	4.0
50-32-8	Benzo[a]pyrene	18		8.0	1.4
205-99-2	Benzo[b]fluoranthene	37		8.0	4.0
191-24-2	Benzo[g,h,i]perylene	18		8.0	4.0
207-08-9	Benzo[k]fluoranthene	17		8.0	2.4
218-01-9	Chrysene	15		8.0	4.0
53-70-3	Dibenz(a,h)anthracene	6.9	J	8.0	4.0
206-44-0	Fluoranthene	9.5		8.0	4.0
86-73-7	Fluorene	8.0	U	8.0	4.0
193-39-5	Indeno[1,2,3-cd]pyrene	11		8.0	4.0
90-12-0	1-Methylnaphthalene	8.0	U	8.0	3.7
91-57-6	2-Methylnaphthalene	8.0	U	8.0	4.0
91-20-3	Naphthalene	8.0	U	8.0	4.0
85-01-8	Phenanthrene	3.0	J	8.0	2.9
129-00-0	Pyrene	9.5		8.0	4.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	74		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Savannah</u>	Job No.: <u>680-109515-4</u>
SDG No.: <u>680-109515-04</u>	
Client Sample ID: <u>HP0320J-CSD6"</u>	Lab Sample ID: <u>680-109515-63</u>
Matrix: <u>Solid</u>	Lab File ID: <u>1KB0727.D</u>
Analysis Method: <u>8270D_LL_PAH</u>	Date Collected: <u>01/27/2015 14:15</u>
Extract. Method: <u>3546</u>	Date Extracted: <u>02/03/2015 13:00</u>
Sample wt/vol: <u>29.97(g)</u>	Date Analyzed: <u>02/07/2015 19:30</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>21.0</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>369988</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	8.5	U	8.5	4.2
208-96-8	Acenaphthylene	27	J	8.5	4.2
120-12-7	Anthracene	39	J	8.5	4.2
56-55-3	Benzo[a]anthracene	200	J	8.5	4.2
50-32-8	Benzo[a]pyrene	150	J	8.5	1.5
205-99-2	Benzo[b]fluoranthene	240	J	8.5	4.2
191-24-2	Benzo[g,h,i]perylene	65	J	8.5	4.2
207-08-9	Benzo[k]fluoranthene	100	J	8.5	2.5
218-01-9	Chrysene	230	J	8.5	4.2
53-70-3	Dibenz(a,h)anthracene	34	J	8.5	4.2
206-44-0	Fluoranthene	320	J	8.5	4.2
86-73-7	Fluorene	8.5	U	8.5	4.2
193-39-5	Indeno[1,2,3-cd]pyrene	58	J	8.5	4.2
90-12-0	1-Methylnaphthalene	16		8.5	3.9
91-57-6	2-Methylnaphthalene	21	J	8.5	4.2
91-20-3	Naphthalene	31		8.5	4.2
85-01-8	Phenanthrene	110	J	8.5	3.0
129-00-0	Pyrene	250	J	8.5	4.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	62		36-131